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Contents:

1. Acute hamstring injuries resulting from a mechanism that involves combined extreme hip flexion and knee extension results in proximal hamstring tears usually involves the semi-membranosus muscle – in 43% of cases in a series this injury was severe enough to end a sports career
2. In a randomized, clinical trial, two treatment protocols of extracorporeal shock wave treatment (perpendicular or tangential administration) for chronic heel pain were equally effective in improving clinical outcome over a 2 and 8 month follow-up period
3. In a randomized, clinical, laboratory trial six commercial heel inserts, compared with no insert, similarly reduced peak heel pressure and maximum force irrespective of the cost of the inserts
4. In a randomized clinical trial, caffeine ingestion (5 mg/kg body mass) 1 hour prior to repeated sprinting resulted in faster sprinting times compared with ingesting a placebo
5. Smoking cessation after a coronary artery bypass graft results in an increased cumulative survival at 10, 20 and 30 years compared with continued smoking – increased life expectancy in the smoking cessation group was 3 years

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Acute hamstring injuries resulting from a mechanism that involves combined extreme hip flexion and knee extension results in proximal hamstring tears usually involves the semi-membranosus muscle – in 43% of cases in a series this injury was severe enough to end a sports career

Title: Proximal hamstring strains of stretching type in different sports. Injury situations, clinical and magnetic resonance imaging characteristics, and return to sport

Authors: Askling CM, Tengvar M, Saartok T, Thorstensson A

Reference: Am J Sports Med 2008; 36(9): 1799-1804

Type of study: Case series

Keywords: hamstrings, injury, proximal, mechanism, stretch, recovery

EB Rating: 5/10

CI Rating: 7.5/10

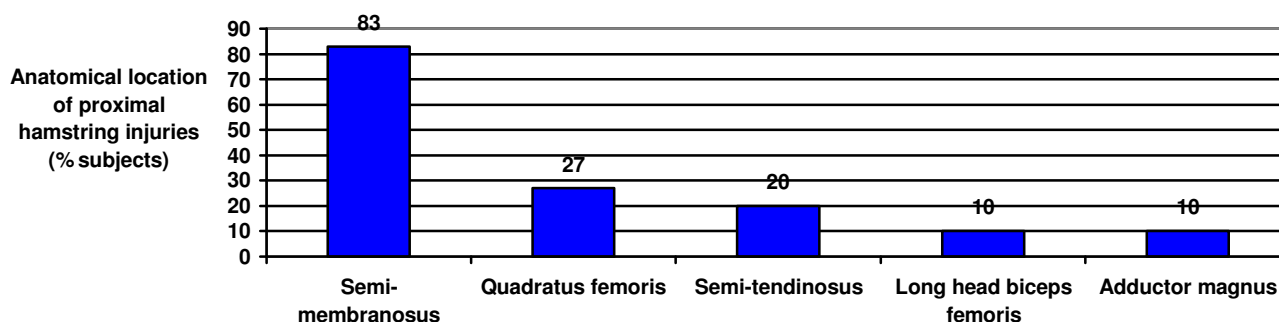
Background: Previously it has been shown that hamstring strains that occur during high-speed running (sprinting) commonly involve the mid-portion of the biceps femoris, while slower speed stretching to extreme ranges in dancing commonly affects the proximal hamstring

Research question/s: Do hamstring strains resulting from a slow stretch to extreme range (the injury mechanism in dancing) in different sports have similar symptoms, injury location, and recovery time?

Methodology:

- Subjects: 30 subjects (female=22, 28±11 yrs) from 21 different sports (not dancers) with an acute first time proximal hamstring strain resulting from a mechanism that incorporated extreme hip flexion and knee extension
- Experimental procedure: All subjects were examined clinically (to confirm the proximal hamstring strain – using tests to elicit pain at the ischial tuberosity) and underwent magnetic resonance imaging (MRI) to confirm the diagnosis, define the anatomical site and the extent of the injury. Subjects were then followed-up until they returned to or discontinued their sport activity.
- Measures of outcome: Site of injury (MRI), return to sports (time) or discontinuing sports (% subjects), clinical or MRI predictors of time to return to sport

Main finding/s:



- Discontinuing or return to sport: 47% (14) of subjects discontinued sport and median time to return to sport of the remaining 53% (16) subjects was 31 weeks (9-104 weeks)
- Predictors of time to return to sport: There were no significant correlations between MRI parameters or clinical parameters and the time to return to sport

Conclusion/s:

- Acute hamstring injuries resulting from a mechanism that involves combined extreme hip flexion and knee extension results in proximal hamstring tears usually involves the semi-membranosus muscle – in 43% of cases in a series this injury was severe enough to end a sports career

Methodological considerations:

Case series, descriptive study, delay from injury to assessment in some cases

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In a randomized, clinical trial, two treatment protocols of extracorporeal shock wave treatment (perpendicular or tangential administration) for chronic heel pain were equally effective in improving clinical outcome over a 2 and 8 month follow-up period

Title: Comparison of two extracorporeal shock wave therapy techniques for the treatment of painful subcalcaneal spur. A randomized controlled study

Authors: Tornese D, Mattei E, Lucchesi G, Bandi M, Ricci G, Melegati G

Reference: Clin Rehabil 2008; 22: 780-787

Type of study: Randomized, clinical trial

Keywords: heel pain, calcaneus, plantar fascia, treatment, extracorporeal shock wave

EB Rating: 7/10

CI Rating: 7.5/10

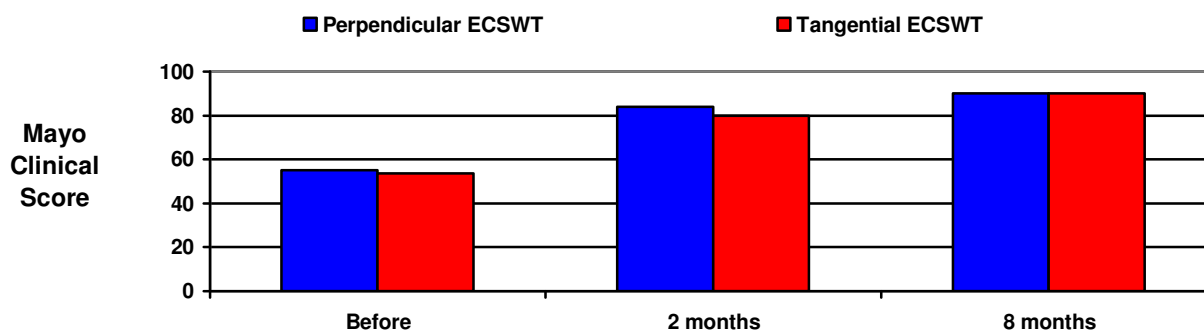
Background: Extracorporeal shock wave therapy (ECSWT) is a therapeutic modality that has been advocated in the treatment of chronic tendon and ligament injuries, including calcaneal spurs

Research question/s: Which of two different extracorporeal shock wave therapy techniques (tangential or perpendicular administration) are most effective in the treatment of painful subcalcaneal spurs?

Methodology:

- Subjects: 45 subjects with chronic (> 6 months) heel pain associated with a calcaneal spur (clinical and radiological assessment)
- Experimental procedure: All the subjects were assessed and then underwent 3 sessions (1800 pulses, 0.22mJ/mm²) ultrasound-guided extracorporeal shock wave therapy each session 1 week apart. In a randomized fashion, subjects received the treatment using either the perpendicular technique (PER=22, 59.3±12 yrs) or the tangential technique (TAN=23, 58.8±12.3 yrs). The Mayo Clinical Scoring system (maximum 100 points; excellent results=90-100, good results=80-89, fair results=70-79, poor results=<70) was administered before treatment, and after 2 and 8 months follow-up.
- Measures of outcome: Mayo Clinical Scoring System

Main finding/s:



Both groups improved significantly over the follow-up time

No significant difference between groups

- The tangential technique was better tolerated (less treatment-induced pain) allowing higher energy dosages to be used

Conclusion/s:

- In a randomized, clinical trial, two treatment protocols of extracorporeal shock wave treatment (perpendicular or tangential administration) for chronic heel pain were equally effective in improving clinical outcome over a 2 and 8 month follow-up period

Methodological considerations:

Well conducted study, small sample size, no placebo control group

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In a randomized, clinical, laboratory trial six commercial heel inserts, compared with no insert, similarly reduced peak heel pressure and maximum force irrespective of the cost of the inserts

Title: Off-the-shelf in-shoe heel inserts: does cost matter?

Authors: Ramanathan AK, John MC, Arnold GP, Cochrane LA, Abboud RJ

Reference: Br J Sports Med 2008; 42: 750-752

Type of study: Randomized, controlled, clinical trial (laboratory)

Keywords: heel, pressure, inserts, testing, commercial, cost

EB Rating: 7.5/10

CI Rating: 7.5/10

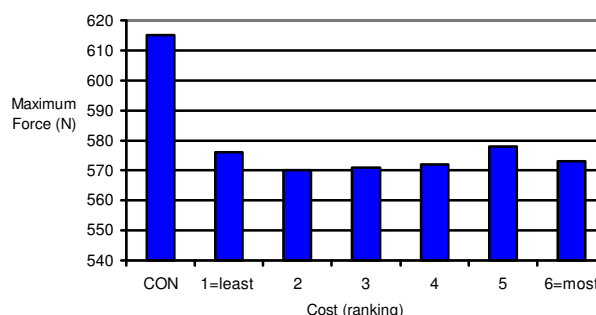
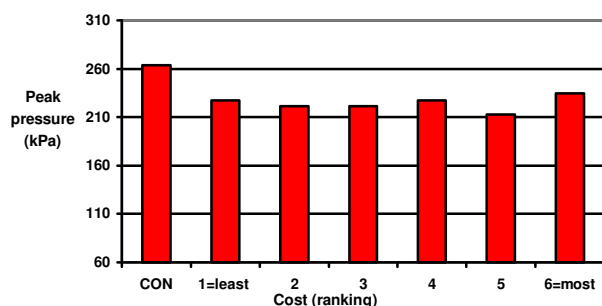
Background: Heel inserts are commonly prescribed, and are effective in reducing heel pain – however, there are a number of inserts available that vary in cost

Research question/s: Do more expensive heel inserts provide greater plantar pressure attenuation under the heel than less expensive inserts?

Methodology:

- Subjects: 35 non-injured subjects (mean 34.6 yrs, male=28). Six brands of off-the-shelf heel inserts were tested
- Experimental procedure: All the subjects were tested, using the Pedar in-shoe system, on a 10 m walkway with no insert (CON) and with each of six viscoelastic shoe inserts (1=least expensive, 6 most expensive) ranging in price from £6-£30. Heel pressure parameters were recorded and compared between inserts
- Main measures of outcome: Heel pressure parameters (maximum force, peak pressure, and pressure-time integral)

Main finding/s:



- All six inserts, irrespective of price, reduced peak pressure and maximum force under the heel

Conclusion/s:

- In a randomized, clinical, laboratory trial six commercial heel inserts, compared with no insert, similarly reduced peak heel pressure and maximum force irrespective of the cost of the inserts
- The durability of the inserts may however differ and was not assessed

Methodological considerations:

Well conducted study

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In a randomized clinical trial, caffeine ingestion (5 mg/kg body mass) 1 hour prior to repeated sprinting resulted in faster sprinting times compared with ingesting a placebo

Title: Caffeine supplementation and multiple sprint running performance

Authors: Glaister M, Howatson G, Abraham CS, Lockey RA, Goodwin JE, Foley P, McInnes G

Reference: Med Sci Sports Exerc 2008; 40(10): 1835-1840

Type of study: Randomized, double-blind, controlled clinical trial (laboratory)

Keywords: caffeine, ergogenic aid, performance, sprinting, methylxanthines, intermittent exercise, fatigue

EB Rating: 7.5/10

CI Rating: 7/10

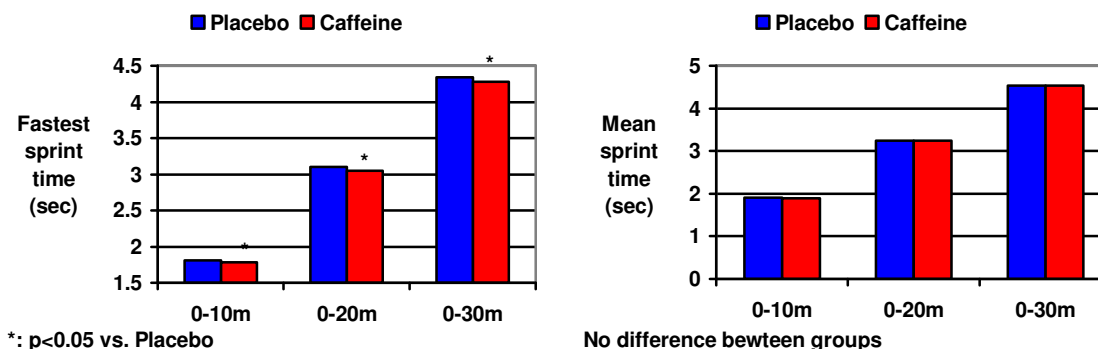
Background: Caffeine, a social drug, has also been shown to improve endurance sports performance but data on possible improvement in sprinting performance, in particular repeat sprinting, has not been well researched

Research question/s: Does caffeine supplementation improve multiple sprint running performance?

Methodology:

- Subjects: 21 males (21±3 yrs) who were regularly physically active
- Experimental procedure: Following an initial assessment, including health screening and a familiarization trial, all subjects performed multiple sprint tests (indoor track, 12x30 m; repeated at 35 sec intervals) 1 hr after ingestion of no capsule (CON), ingestion of a gelatin capsule containing either caffeine (CAF, 5 mg/kg body mass) or placebo (PLAC, maltodextrin). Sprint times (via twin-beam photocells), pre- and post test blood lactate (earlobe blood samples), heart rate (continuous monitoring), RPE (recorded after 3rd sprint), and plasma caffeine and primary metabolite concentrations (venous blood samples) were determined.
- Measures of outcome: Sprint time (fastest and mean from 0-30m)(sec); other measures (blood lactate, RPE)

Main finding/s:



- Heart rate: In the CAF condition there was a 3.4 beats/minute increase in mean heart rate
- Blood lactate: In the CAF condition there was an increase in pre- and post-test blood lactate concentrations

Conclusion/s:

- In a randomized clinical trial, caffeine ingestion (5 mg/kg body mass) 1 hour prior to repeated sprinting resulted in faster sprinting times compared with ingesting a placebo

Methodological considerations:

Well conducted study

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Smoking cessation after a coronary artery bypass graft results in an increased cumulative survival at 10, 20 and 30 years compared with continued smoking – increased life expectancy in the smoking cessation group was 3 years

Title: Three life-years gained from smoking cessation after coronary artery bypass surgery: A 30-year follow-up study

Authors: van Domburg RT, Scholte op Reimer W, Hoeks SE, Kappetein AP, Bogers AJJC

Reference: Am Heart J 2008; 156(3): 473-476

Type of study: Prospective cohort study

Keywords: coronary artery disease, CABG, smoking, risk factor, cessation, survival, life expectancy

EB Rating: 8/10

CI Rating: 8/10

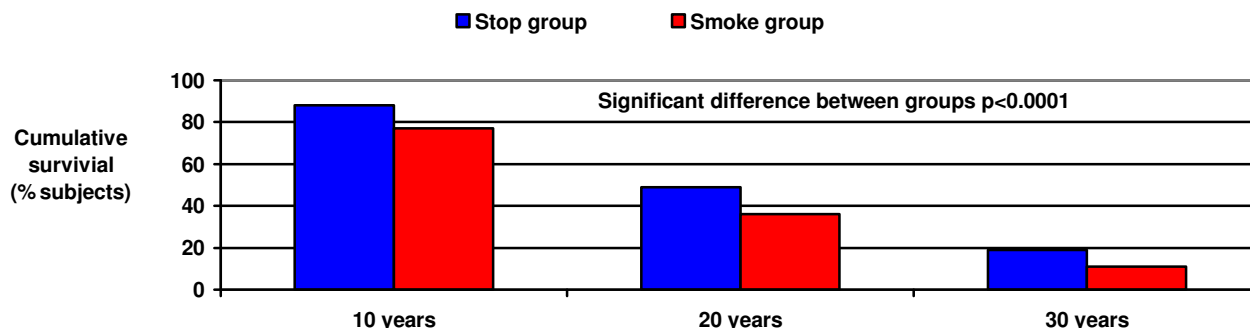
Background: Smoking cessation is an important lifestyle factor to reduce mortality after a cardiac event – however, the effect of smoking cessation on prolonging life-years is not established

Research question/s: Does smoking cessation after a cardiac event (coronary bypass surgery) increase life expectancy?

Methodology:

- Subjects: 1041 patients who successfully underwent isolated venous coronary artery bypass surgery (mean age at surgery=51 yrs, males= 92%)
- Experimental procedure: Subjects were divided into non-smokers (Non=434), smokers who stopped smoking directly after the surgery (Stop=237), and smokers who continued smoking after surgery (Smoke=314) and then followed for 30 years. Cumulative survival was documented over the follow-up period.
- Main measures of outcome: Cumulative survival (% at 10, 20 and 30 yrs), life expectancy (area under the curve of the Kaplan-Meier curve) for all members of the Stop and Smoke group

Main finding/s:



- Smoking cessation was an independent predictor of lower mortality (HR 0.60, 95% CI 0.48-0.72) after adjusting for all baseline characteristics
- Life expectancy in the Stop group was 20.0 yrs compared with the Smoke group (17.0 yrs)($p < 0.0001$)

Conclusion/s:

- Smoking cessation after a coronary artery bypass graft results in an increased cumulative survival at 10, 20 and 30 years compared with continued smoking – increased life expectancy in the smoking cessation group was 3 years

Methodological considerations:

Well conducted study, self-reported smoking history

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